

## CLAIMS:

1. A press-fitting method for press-fitting a ceramic catalyst carrier with a non-expandable mat being wrapped thereon into an outer housing cylinder, characterized in that the ceramic catalyst carrier with the non-expandable mat being assembled on an outer periphery thereof is, after an entire outer peripheral surface of the non-expandable mat is evenly pressed in a radial direction and an contour of the non-expandable mat is press formed to be close to an inner diameter of an outer housing cylinder constituting a part of an exhaust passage, press-fitted into the outer housing cylinder.
2. A press-fitting apparatus for press-fitting a ceramic catalyst carrier with a non-expandable mat being wrapped thereon into an outer housing cylinder, characterized in that it comprises: a press-forming jig configured to evenly press in a radial direction an entire outer peripheral surface of a non-expandable mat assembled on an outer periphery of the ceramic catalyst carrier and press form an contour of the non-expandable mat to be close to an inner diameter of an outer housing cylinder constituting a part of an exhaust passage; and a press-fitting unit configured to press-fit the ceramic catalyst carrier with the non-expandable mat being press formed by said press-forming jig into the outer housing cylinder.
3. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 2, characterized in that said press-forming jig comprises: a partly cut cylindrical pressing member constituted of divided pressing pieces plurally divided in a circumferential direction along the outer periphery of the non-expandable mat; an outer cylinder covering the outer periphery of said partly cut cylindrical pressing member; and a radial pressing member configured to evenly press in a radial direction the entire outer periphery of the non-expandable mat to press form the contour of the non-expandable mat to be close to the inner diameter of the outer housing cylinder

by press-fitting into a space between said outer cylinder and said partly cut cylindrical pressing member.

4. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 3, characterized in that both side edges on an inner diameter side of each of the divided pressing pieces are chamfered in an arc shape or a taper shape.
5. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 3 or 4, characterized in that at the time when the press-forming of the non-expandable mat by using said press-forming jig is completed, a predetermined gap is maintained between cutout portions of adjacent divided pressing pieces.
6. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 5, characterized in that the predetermined gap maintained between the cutout portions of adjacent divided pressing pieces is set in the range from the same as the thickness of the non-expandable mat to 1/2 of the thickness after the press-forming.
7. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to any one of claims 2 to 6, characterized in that a cylindrical guide configured to guide the ceramic catalyst carrier in which the non-expandable mat is press formed by using said press-forming jig to the outer housing cylinder is provided integrally at an exit side of said radial pressing member, and that said press-fitting unit is configured to press-fit the ceramic catalyst carrier in which the non-expandable mat is press formed by using said press-forming jig via said cylindrical guide into the outer housing

cylinder arranged on an exit side of said cylindrical guide.

8. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 7, characterized in that the inner diameter of said cylindrical guide is formed to be larger than the inner diameter of said partly cut cylindrical pressing member at the time when the press-forming is completed.
9. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 7 or 8, characterized in that an exit side opening edge of said partly cut cylindrical pressing member is chamfered in an arc shape or a taper shape.
10. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to claim 7 or 8, characterized in that at least one of the exit side opening edge of said partly cut cylindrical pressing member and an entrance side opening edge of said cylindrical guide is chamfered in an arc shape or a taper shape.
11. The press-fitting apparatus for press-fitting the ceramic catalyst carrier with the non-expandable mat being wrapped thereon into the outer housing cylinder according to any one of claims 3 to 10, characterized in that according to dispersion of the outer diameter of the ceramic catalyst carrier with the non-expandable mat being wrapped thereon, an outer diameter value of the ceramic catalyst carrier is fed back for controlling a radial direction pressing stroke amount of said partly cut cylindrical pressing member in said press-forming jig.